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09/400,151	09/21/1999	ADNAN SHENNIB	ISM/007	3077

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EXAMINER

LAO, LUN S

ART UNIT	PAPER NUMBER
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2643

DATE MAILED: 07/08/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/400,151

Applicant(s)

SHENNIB, ADNAN

Examiner

Lun-See Lao

Art Unit

2643

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-109 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-109 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### *Introduction*

1. This action responds to the amendment filed on 04-11-2003. Claims 1-109 are pending. Claims 1, 37, 70, 84 and 98 have been amended.

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 98-109 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The limitation of "performing automatic position sensing to properly position said individual relative to said device so as perform hearing evaluation of said individual based on said acoustic test stimuli" cited in claims 98-109 was not described in the further detail in the specification nor in any of the claim. The specification only discloses, "Furthermore, the test subject or a test operator is automatically alerted whenever the device is incorrectly positioned during a test." (see page 6 lines 18-19).

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all been obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 5, 7-9, 14, 20-22, 31-32 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) in view of Sharma et al (US PAT. 5,615,229).

Regarding claim 1, Brillhart teaches that a device for performing sound field hearing testing, said device comprising:

- a) an audio transducer (see fig.3, 106) for producing acoustic test stimuli to a test subject within the direct sound field range of said audio transducer, and
- b) a contactless position sensor (see fig.2, 14) system for measuring (see fig.1, 15) the position of said device with respect to the head or part thereof of interest of said test subject (patient).

Brillhart does not explicitly teach that means for enhancing reception and directionality of position sensing for properly positioning said device relative to said test subject whereby hearing evaluation of said test subject may be performed by said device based on said acoustic test stimuli.

However, Sharma teaches means for enhancing reception and directionality of position sensing (eliminate dependence of received signal on orientation or distance of the receiving element from transmitting loop) for properly positioning a device relative to a test subject whereby hearing evaluation of the test subject may be performed by the device based on an acoustic test stimuli (see col. 23 line 33 – col. 24, line 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Brillhart and Sharma so as to provide a desired signal to noise ration (Sharma, col. 4, lines 14-16).

Regarding claims 2-3, Brillhart teaches the device of including means for automatically determining or adjusting characteristics of said acoustic test stimuli, including onset, amplitude and frequency characteristics, in response to position measurement performed by said position sensor system (see col.4 line 15-col.5 line 20)

and that device is constructed and adapted to be hand held by said test subject (see fig.1, 20).

Regarding claims 5, 7-9, Brillhart teaches the device is configured for operation by a test operator (audiologist) assisting said test subject (patient) and the device of including means for performing said hearing evaluation in an aided condition in which said test subject is wearing a hearing aid (see fig.1, 10); and including means for performing said hearing evaluation in said aided condition to verify functionality of said hearing aid worn by said test subject and including means for performing said hearing evaluation in said aided condition to adjust at least one parameter of said hearing aid (see col.4 line 25-col.5 line 20).

Regarding claim 14, Brillhart teaches the contactless position sensor system comprises at least one of an optical transducer, acoustic transducer and ultrasonic transducer (see fig.2, 15 and fig.3, 110).

Regarding 20-22, Brillhart teaches the device of further comprising means to select from at least two types of acoustic test stimuli including speech, noise and tone types (see col.4 line 25-col.5 line 22); and to select acoustic test stimuli in at least two frequency ranges and comprising at least one switch for selection of at least one acoustic test stimulus.

Regarding claims 31-32, 35, Brillhart teaches the device of further comprising a controller (see fig.1, 20); and comprising memory for storage of data representative of acoustic test stimuli (see fig.2, (55,52,56)); and the device of further comprising a controlling or adjusting one parameter of said hearing aid worn by said test subject (see col.4 line 25-col.5 line 21).

6. Claims 37-39, 41-43, 48, 50, 53-65 and 68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shennib (US PAT. 5,197,332) in view of Lotito (US PAT. 6,304,179).

Regarding claim 37, Shennib teaches a hand held device for performing sound field hearing evaluation in a contactless manner with respect to a test ear of a test subject, said device comprising:

a) an audio transducer (see fig.2, 14) for delivering acoustic test stimuli to said test subject holding said device (18a) within the direct sound field range of said audio transducer (14),

b) means for selecting delivery of said acoustic test stimuli through said audio transducer at two or more intensity levels for performing one or more supra-threshold (see fig.4, 114) hearing measurements (see col.9 line 40-col.10 line 55), and

c) means for selecting delivery of said acoustic test stimuli through said audio transducer in at least two frequency ranges for performing hearing evaluation in at least two frequency ranges (see col.10 line 55-col.11 line 20).

Shennib fails to teach a position sensor for automatically measuring the position of said device relative to the head or portion of the head of interest of the test subject.

However, Lotito teaches a position sensor for automatically measuring the position of said device relative to the head or portion of the head of interest of the test subject (see col.2 line 10-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Shennib and Lotito so as to ensure the quality of data collected (Lotito, col. 6, lines 47-49).

Regarding claims 38-39, Shennib teaches the hand held device of is configured for operation by said test subject and device is configured for operation by a test operator assisting said test subject (see col.4 lines 45-55).

Regarding claims 41-43, Shennib teaches the hand held device of including means for performing said hearing evaluation in an aided condition in which said test subject is wearing a hearing aid (see fig.1); and the device of including means for performing said hearing evaluation in said aided condition to verify functionality of said hearing aid worn by said test subject (see col.5 line 17- col.6 line 10); and the hand held device of including means for performing said hearing evaluation in said aided condition to adjust at least one parameter of said hearing aid (see col.10 line 2-col.11 line 20).

Regarding claims 48, 50, Shenib teaches the hand held device of further comprising a contactless position sensor system (see fig.2, 28a, 28b) for measuring the position of said device with respect to the head or part thereof of interest of said test

subject; and the hand held device wherein said contactless position sensor system comprises at least one ultrasonic transducer (see col.9 lines 1-20).

Regarding claims 53-58, Shennib teaches the hand held device of further comprising means to select from at least two types of said acoustic test stimuli including speech, noise and tone types (see col.7line 57-col.8 line 10); and the hand held device of further comprising means to select said acoustic test stimuli in at least two frequency rang (see col.10 line 55-col.11 line 25); and the hand held device of further comprising at least one switch for selection of said acoustic test stimuli (see col.6 line 60-col.7 line 30); and the hand held device of further comprising interface means for connecting a remote instrument for remotely operating said hand held device (see fig.4, 126,124); and the hand held device of remote instrument comprises a computer (see col.4 line 5-15); and the hand held device of said interface means comprise the Internet (see fig.4, 126, modem can connect to the internet).

Regarding claims 59-65, 68, Sheenib teaches the hand held device of interface means comprise an electrical cable (see col.4 lines 5-15); and interface means comprises a wireless link including any of infrared, radio frequency, electromagnetic, sound, or ultrasound (see col.9 lines 1-27); and further comprising response registration means for registering test responses by said test subject and relaying said test responses to said remote instrument (see col.10 line 55-col.11 line 20); and the hand device wherein said response registration means comprise at least one key (col.10 line 55, col.11 line 25, 18a); and the hand held device of further comprising visual status display means, including an liquid crystal display (LCD) and light emitting diode (LED) (see col.5 lines 5-62); and the hand held device of further comprising a controller (32, microtroller); and the hand held device of further comprising memory for storage of data representative of acoustic test stimuli (see col. 6 line 60-col.7 line 28); and the hand held device of further comprising wireless remote control means for controlling or adjusting at least one parameter of said hearing aid worn by said test subject (see col.9 line 60-col.10 line 37).

7. Claims 70-72, 75-78, and 81-82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US PAT. 5,721,783) in view of Lotito (US PAT. 6,304,179).

Regarding claim 70, Anderson teaches a system for performing hearing evaluation of a test subject comprising:

- a) a hand held device containing an audio transducer (see fig.2, spkr) within, said hand held device (see fig.2, 23) being positioned within the direct sound field range of said audio transducer and positioned in a contactless manner with respect to a test ear of said test subject (22),

- b) an auxiliary (22) instrument operably connected to said hand held device (23) for remotely controlling the operation of said hand held device, and

- c) means for selecting the delivery of acoustic test stimuli through said audio transducer at two or more intensity levels and at two or more frequency ranges (see col.27 lines 2-25).

Anderson fails to teach a position sensor for automatically measuring the position of said device relative to the head or portion of the head of interest of the test subject.

However, Lotito teaches a position sensor for automatically measuring the position of said device relative to the head or portion of the head of interest of the test subject (see col.2 line 10-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Anderson and Lotito so as to ensure the quality of data collected (Lotito, col. 6, lines 47-49).

Regarding claims 71,72, 75, Anderson teaches the hand held device (23) is independently operable as a hearing evaluator when detached from said auxiliary instrument; and the hand held device further comprises a contactless position sensor (22) system for measuring the position of said hand held device (23) with respect to the head or part thereof of interest of said test subject; and the system of including means for performing said hearing evaluation in an aided condition in which said test subject is wearing a hearing aid (see fig.1).



Regarding claims 76-78, Anderson discloses the system of including means for performing said hearing evaluation in said aided condition to verify functionality of said hearing aid; and hearing evaluation in said aided condition to adjust at least one parameter of said hearing aid; and programming the function or operation of said hand-held device (23) with said auxiliary instrument (22) according to the needs of said test subject (see col.7 line 2-20).

Regarding claims 79-80, Anderson teaches the system of hand held device further comprises response registration means for registering test responses by said test subject and relaying said test responses to said auxiliary instrument (see col.20 line 48-col.21 line30; and response registration means comprise at least one key (see fig.7).

Regarding claims 81-82, Anderson teaches the system of auxiliary instrument is a computer (see col.26 line20-55); and the system of including means for remotely connecting said auxiliary instrument to said hand held device through the Internet (from cellular telephone)

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of Luethi (US PAT. 4,918,737).

Regarding claim 4, Brillhart and Sharma fail to teach that the device is configured as a wrist watch.

However, Luethi teaches that the device is configured as a wrist watch (see fig.1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teaching of Luethi with that of Brillhart and Sharma to achieve hearing aid with wireless remote control for friendlier use.

9. Claims 6, 10-13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of Downs (US PAT. 5,428,998).

Regarding claim 6, Brillhart as modified fails to teach means for performing said hearing evaluation in an unaided condition in which said test subject is not wearing a hearing aid.

However, Downs teaches the device of including means for performing said hearing evaluation in an unaided condition in which said test subject is not wearing a hearing aid (see fig.2).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Downs with that of Brillhart as modified by Sharma to provide a hearing aid with wireless remote control at less cost.

Regarding claims 10-13, Downs teaches the device of further comprising means for delivering at least one of said acoustic test stimuli within the soft level listening range of normal hearing individuals, wherein said soft level listening range is between 20 and 40 dB HL; and the device of further comprising means for delivering at least one of said acoustic test stimuli within the comfortable level listening range of normal hearing individuals, wherein said comfortable level listening range is between 45 and 65 dB HL (see col.2 line 50-col.3 line2).

10. Claims 40,44-47, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shennib (US PAT. 5,197,332) in view of Lotito (US PAT. 6,304,179) as applied to claim 37 and further in view of Downs (US PAT. 5,428,9987).

As to claims 40, 44-47, Note rejection of claims 6, 10-13 for discussion.

11. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US PAT. 5,721,783) in view of Lotito (US PAT. 6,304,179) as applied to claim 70 and further in view of Downs (US PAT. 5,428,9987).

As to claim 74, note rejection of claim 6 for discussion.

12. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) in view of Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of King (US PAT. 4,615,007).

Regarding claim 15, Brillhart as modified fails to teach contactless position sensor system comprises means for automatically computing the distance between said device and the head or part thereof of interest of said test subject.

However, King teaches contactless position sensor (see fig.1 34) system comprises means for automatically computing the distance between said device and the head or part thereof of interest of said test subject (see col.10 line 50-col.11 line51).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of King with those of Brillhart and Sharma to achieve a hearing aid with wireless remote control for more accurate testing.

13. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of Eckstein (US PAT. 4,964,304).

Regarding claim 16, Brillhart and Sharma fail to teach that contactless position sensor system comprises means for automatically determining if the device is within an operable range and orientation with respect to the head or part thereof of interest of said test subject.

However, Eckstein teaches that a contactless position sensor system comprises means for automatically determining if the device is within an operable range and orientation with respect to the head or part thereof of interest of said test subject (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of Brillhart and Sharma with the teaching of Eckstein to achieve hearing aid with wireless remote control for more convenient operation.

14. Claims 17,19,33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of Anderson (US PAT. 5,721,783).

Regarding claim 17, Brillhart and Sharma fail to teach that contactless position sensor system comprises a transmitting transducer and a receiving transducer.

However, Anderson discloses that contactless position sensor system comprises a transmitting transducer and a receiving transducer see fig.2, (27,24))

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of Brillhart and Sharma with the teaching of Anderson to achieve a hearing aid with wireless remote control for less.

Regarding claim 19, Anderson teaches the device of transmitting transducer (27) and receiving transducer (24) are combined in a unitary bidirectional transducer (wireless microphone).

Regarding claim 33-34, Anderson teaches the device of further comprising a microphone; and microphone provides means for measuring ambient background noise, for self testing, or for self calibration of said device (see col.7 lines 1-20).

15. Claims 23-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of Shennib (US PAT. 5,197,332).

Regarding claims 23,30, Brillhart and Sharma fail to teaches the device of further comprising interface means for connecting a remote instrument to said device for remotely operating said device; and the device of further comprising visual status display means, including liquid crystal display (LCD) and light emitting diode (LED).

However, Shennib teaches the device comprising interface means for connecting a remote instrument to said device for remotely operating said device (see fig.4, 124); and the device of further comprising visual status display means, including liquid crystal display (LCD) and light emitting diode (LED) ( see col.5 lines 3-36).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, would have been motivated to combine the teachings of Brillhart and Sharma with that of Shennib to achieve hearing aid with wireless remote control for more friendliness.

Regarding claims 24-29, Shennib teaches that device of remote instrument comprises a computer (see col.7 line 29-56); and interface means comprise an electrical cable (see col.4 lines 5-15); and interface means comprise the Internet (see fig.4, 126, modem connect to the internet); and the interface means comprise a wireless link including any of infrared, radio frequency, electromagnetic, sound, or ultrasound (see col.5 lines 19-36); and the device of further comprising response registration means for registering test responses by said test subject and relaying said test responses to said remote instrument; and the device of response registration means comprise at least one key (see col.5 line 19-col.6 line 10). Note rejection of claim 23 for a motivation to combine.

16. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Brillhart (US PAT. 5,303,306) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 35 above, and further in view of Shennib (US PAT. 5,425,104).

Regarding claim 36, Brillhart and Sharma fail to teach that the device of further wireless remote control means comprise a magnet.

However, Shennib '104 teaches that the device of wireless remote control means comprise a magnet (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of Brillhart and Sharma into the teaching of Shennib '104 to achieve hearing aid with wireless remote control for improved transmission of sound signals to the inner ear.

17. Claim 69 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sheenib (US PAT. 5,197,332) as modified by Lotito (US PAT. 6,304,179) as applied to claim 68 above, and further in view of Shennib (US PAT. 5,425,104).

As to claim 69, Note rejection of claim 36 for discussion.

18. Claims 49,51, 66-67, are rejected under 35 U.S.C. 103(a) as being unpatentable over Shennib (US PAT. 5,197,332) as modified by Lotito (US PAT. 6,304,179) as applied to claim 37 above, and further in view of Anderson (US PAT. 5,721,783).

As to claims 66-67, Note rejection of claims 33-34 for discussion.

Regarding claim 49, Shennib fail to teaches the hand held device of further including means for automatically adjusting the characteristics of said acoustic test stimuli, including onset, amplitude and frequency, in response to position measurements performed by said contactless position sensor system.

However, Anderson teaches the hand held device of further including means for automatically adjusting the characteristics of said acoustic test stimuli, including onset, amplitude and frequency, in response to position measurements performed by said contactless position sensor system (see fig.2 (27,24) and col.6 line 47-col.7 line 20).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Anderson in order to provide the hearing aid with wireless remote control for more convenient in testing.

Regarding claim 51, Anderson teaches the hand-held device of conntactless position sensor (see fig.2, (27,24) system comprises means for automatically determining if the device is within an operable distance and orientation with respect to said head or part thereof of interest of said test subject (see col.21 line 30- col.22 line 18).

19. Claim 52 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shennib (US PAT. 5,197,332) as modified by Lotito (US PAT. 6,304,179) as applied to claim 37 above, and further in view of King (US PAT. 4,615,007) and Anderson (US PAT. 5,721,783).

Regarding claim 52, Shennib fail to teach that the hand held device of contactless position sensor system comprises means for computing the distance between the device and said head or part thereof of interest of said test subject based on the latency period between a transmitted signal emitted by an ultrasonic transmitting transducer and reflected signal received by an ultrasonic receiving transducer.

However, King teaches that the hand held device of contactless position sensor system comprises means for computing the distance between the device and said head or part (see col.21 line 30-col.22 line 18).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of Shennib and King to achieve hearing aid with wireless remote control for more accurate in the system.

Shennib in view of Lotito and King does not teach that the computation is based on the latency period between a transmitted signal emitted by an ultrasonic transmitting transducer and reflected signal received by an ultrasonic receiving transducer.

However, Anderson teaches computation based on the latency period between a transmitted signal (see fig.1, 17) emitted by an ultrasonic transmitting transducer (16) and reflected signal (see fig.1, 17) received by an ultrasonic receiving transducer (16) (see col.3 line 50-col.4 line 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Anderson in order to provide the hearing aid with wireless remote control for more convenient in the system.

20. Claims 73 and 83, are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US PAT. 5,721,783) as modified by Lotito (US PAT. 6,304,179) as applied to claim 70 above, and further in view of Eckstein (US PAT. 4,964,304).

Regarding claim 73, Anderson and Lotito fail to teach the system of including means for automatically adjusting the characteristics of said acoustic test stimuli, including onset, amplitude and frequency, in response to position measurements performed by said position sensor system.

However, Eckstein teaches the system of including means for automatically adjusting the characteristics of said acoustic test stimuli, including onset, amplitude and frequency, in response to position measurements performed by said position sensor system (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teaching of Eckstein in order to provide the hearing aid with wireless remote control for more convenient in testing.

Regarding claim 83, Ecksstein teaches that the system of auxiliary instrument is an audiometer (see fig.1, 18).

21 Claims 84-91 and 93-97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Anderson (US PAT. 5,721,783) in view of Eckstein (US PAT. 4,964,304), and further in view of Lotito (US PAT. 6,304,179).

Regarding claim 84, Anderson teaches that method of evaluating a test subject's hearing with a device containing a contactless position sensor system and an audio transducer, said method comprising the steps of:

delivering said acoustic test stimuli to said test subject while said device is oriented toward said subject's head or part thereof of interest (see col.27 line 3 –col.28 line 30).

Anderson fails to teaches automatically determining any of the characteristics of acoustic test stimuli from said audio transducer, including onset, amplitude and frequency thereof, according to the measurement performed by said position sensor system and automatically measuring the position of said subject's head or part thereof of interest and thereby properly positioning relative to said device with said position sensor system when said device is oriented to face said subject's head or part thereof of interest.

However, Eckstein teaches automatically determining any of the characteristics of acoustic test stimuli from said audio transducer, including onset, amplitude and frequency thereof, according to the measurement performed by said position sensor system (see abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the teachings of Eckstein in order to provide the hearing aid with wireless remote control to make tests more convenient.



Anderson as modified by Eckstein does not teach automatically measuring the position of said subject's head or part thereof of interest and thereby properly positioning relative to said device with said position sensor system when said device is oriented to face said subject's head or part thereof of interest.

On the other hand, Lotito teaches automatically measuring the position of said subject's head or part thereof of interest and thereby properly positioning relative to said device with said position sensor system when said device is oriented to face said subject's head or part thereof of interest (see col.2 line 10-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Anderson and Eckstein with the teaching of Lotito so as to ensure the quality of data collected (Lotito, col. 6, lines 47-49).

Regarding claims 85-86, Anderson teaches the method of including the step of orienting said audio transducer at approximately 0 ° degree incidence and within a distance range of 30-60cm with respect to the forehead of said test subject, while performing said step of delivering acoustic test stimuli; and the method of including the step of orienting said audio transducer at approximately 0 ° - 45 ° degree incidence range and within a distance range of 2-10 cm with respect to a test ear of said test subject while performing said step of delivering acoustic test stimuli, for monaural hearing evaluations ( by using only part of RPU in fig.2, see col.27 line 3-col.28 line 60).

Regarding claims 87,88, Anderson teaches the method of including delivering said acoustic test stimuli in an unaided condition in which said test subject is not wearing a hearing aid (The test is using only part of RPU in fig.2, 23); and the method including delivering said acoustic test stimuli in an aided condition in which said test subject is wearing a hearing aid (the test is using with earpiece, see fig.2).

Regarding claim 89-91, Anderson teaches the method of including delivering said acoustic test stimuli in said aided condition to verify the functionality of said hearing aid (see col.27 line 3-col.28 line 60); and to adjust at least one parameter of said hearing aid (see col.23 line 5-col.24 line 15); and the method of device is hand held by said test subject during said hearing evaluation (see fig.2).

Regarding claims 93-96, Anderson teaches that the device is configured to be held by a test operator assisting said subject during said hearing evaluation (see col.27 line3-col.28 line 50); and the method of including connecting a remote instrument to said device via an interface to remotely control said device during said hearing evaluation (see col.25 line2 –col.24 line 60) and the method of including connecting said remote instrument to said device via the Internet (by using cellular telephone connect to the internet ,see fig.2); and the method of remote instrument is a computer (see col.26 lines 23-55).

Regarding claim 97, Eckstein teaches that the method of remote instrument is an audiometer (see fig.1, 18).

22. Claims 98-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Downs (US PAT. 5,303,306) in view of Sharma et al (US PAT. 5,615,229).

Regarding claim 98, Downs teaches a method of hearing evaluation for an individual holding a hand held device containing an audio transducer for delivering acoustic test stimuli in a contactless manner and within the direct sound field range of said audio transducer with respect to a test ear of said individual, said method comprising the steps of

a) delivering at least two levels of said acoustic test stimuli to said test ear of the individual (see col.3 line 30-col.4 line 16), and

b) delivering said acoustic test stimuli in at least two frequency ranges (see col.3 line 30-col.4 line 16).

Downs does not teach that performing automatic position sensing to properly position said individual relative to said device so as perform hearing evaluation of said individual based on said acoustic test stimuli.

However, Sharma teaches means for enhancing reception and directionality of position sensing (eliminate dependence of received signal on orientation or distance of the receiving element from transmitting loop) for properly positioning a device relative to a test subject whereby hearing evaluation of the test subject may be performed by the device based on an acoustic test stimuli (see col. 23 line 33 – col. 24, line 40).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Downs and Sharma so as to provide a desired signal to noise ration (Sharma, col. 4, lines 14-16).

Regarding claims 99-101, Downs teaches the method of including orienting said audio transducer at approximately 0 ° degree incidence and within a distance range of 30-60cm with respect to the forehead of said individual (see col.3 line 30-col.4 line 16); and the method of including orienting said audio transducer at approximately 0 ° - 45 ° degree incidence range and within a distance range of 2-10 cm with respect to said test ear, for monaural hearing evaluations (see abstract); and the method of including performing said hearing evaluation in an unaided condition in which said individual is not wearing a hearing aid (see col.6 line 47 – col.7 line 30).

23. Claims 102--109 rejected under 35 U.S.C. 103(a) as being unpatentable over Downs (US PAT. 5,428,998) as modified by Sharma et al (US PAT. 5,615,229) as applied to claim 1 above, and further in view of Shennib (US PAT. 5,197,332).

Regarding claim 102, Downs and Sharma fail to teaches the method of performing said hearing evaluation in an aided condition in which said individual is wearing a hearing aid.

However, Shennib teaches that the method of performing said hearing evaluation in an aided condition in which said individual is wearing a hearing aid (see col.7 line 55-col.8 line 45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of Downs and Shennib to achieve hearing aid with wireless remote control for more accurate in testing.

Regarding claim 103-106, Shennib teaches the method of including performing said hearing evaluation in said aided condition to verify the functionality of said hearing aid (see col.10 line 37-col.11 line 25); and the method of including performing said hearing evaluation in said aided condition to adjust at least one parameter of said hearing aid (see col.9 line 45-col.10 line 37); and the method of a test operator holds said device while assisting said individual in said hearing evaluation (see col.7 line 56-

col.8 line 12); and the method of including connecting a remote instrument to said device via an interface to remotely control said device during said hearing evaluation (see col. 7 line 29-55).

Regarding claims 107-109, Shennib teaches the method of including connecting said remote instrument to said device via the Internet (by using modem connect to internet, see fig.4, 126); and the method of wherein said remote instrument is a computer (see col.7 lines 29-55); and the method of remote instrument is an audiometer (see col.5 line 60-col.6 line 10).

24. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over as Brillhart (US PAT. 5,303,306) in view of Sharma et al (US PAT. 5,615,229) and Anderson (US PAT. 5,721,783) as applied to claim 17 above, and further in view of King (US PAT. 4,615,007).

Regarding claim 18, Brillhart as modified teaches (Anderson) the device of contactless position sensor system thereof of interest of said test subject based on the latency period between a transmitted signal (see fig.2, f2) emitted by said transmitting transducer (27) and reflected signal (f1) received by said receiving transducer (24).

Brillhart as modified fails to teach the contactless position sensor system comprises means for computing the distance between the device and the head or said part.

However, King teaches that the contactless position sensor system comprises means for computing the distance between the device and the head or said part (see col.10 line 50-col.11 line 15).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teaching of Brillhart as modified by Sharma and Anderson with the teaching of King in order provide calibration of the test before actual testing (King, col. 13, lines 42-60).

25. Claim 92 is rejected under 35 U.S.C. 103(a) as being unpatentable over as Anderson (US PAT. 5,721,783) in view of Lotito (US PAT. 6,304,179) and Eckstein (US

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PAT. 4,964,304) as applied to claim 84 above, and further in view of Luethi (US PAT. 4,918,737).

Regarding claim 92, Anderson as modified fails to teach that the device is configured as a wrist watch.

However, Luethi teaches that the device is configured as a wrist watch (see fig.1).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made, to combine the teachings of Anderson as modified with that of Luethi so as to achieve a hearing aid with wireless remote control which is more user friendly.

### ***Response to Arguments***

26 Applicant's arguments with respect to claims 1-109 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

27. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

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28. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Shugart (US PAT. 5,420,930) is recited to show other related personal hearing evaluator.

29. Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA. Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao, Lun-See whose telephone number is (703) 305-2259. The examiner can normally be reached on Monday-Friday from 8:00 to 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz, can be reached on (703) 305-4708.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (703) 306-0377.

Lao, Lun-See

Patent Examiner

US Patent and Trademark Office

Crystal Park 2

(703) 305-2259

  
DUC NGUYEN  
PRIMARY EXAMINER